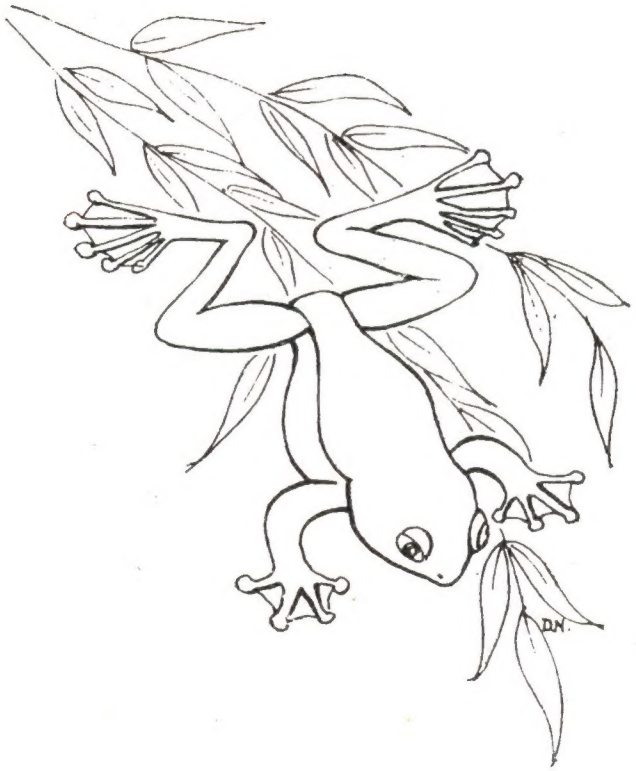
HAMADRYAD



FLYING FROG
RHACOPHORUS
MALABARICUS

HAMADRYAD : NEWSLETTER OF THE MADRAS SNAKE PARK TRUST

6 : No.3 September 1981

News from the MADRAS SNAKE PARK and
MADRAS CROCODILE BANK

The Snake Park has offered its facilities to the Madras Environmental Association which has been holding fortnightly meetings there. Mr. Jagannatha Rao, our honorary secretary, is an active member of the Association.

J Vijaya, Research Associate at MSP, Chockalingam, an Irula keeper and R.W have been carrying out a study on monitor lizards (Varanus bengalensis) as rodent predators. This has thrown up some interesting data; scats collected in farmlands (high rodent population) show a 60% rat content while those collected in Guindy Park (scrub forest) have a 30% rat content.

Shekar Dattatri was in the Kalakkadu Wildlife Sanctuary (in Tirunelveli District) for ten days in June-July, on a follow-up survey of the reptiles and amphibians in this area. A summary of his report is included in this issue.

The Director was in Bangladesh for a month working on a food loss/ rodent control program. He was looking at monitor lizards as rodent predators. His report is on page 7.

For the second consecutive year a Crocodylus porosus has nested at the Crocodile Bank. Her nest last year was wholly infertile and so far this nest has not been encouraging; one egg opened on 30/7 was infertile. The palustris nesting data is now complete; the total for 1981 is 297 hatchlings.

J Vijaya will be associated with a freshwater turtle study and survey initiated by Ed Moll of the Illinois State University. The project will be sponsored by World Wildlife Fund and is expected to begin in September. P.K. Manna of the University of Calcutta is the other survey member.

The Snake Park and the National Museum of Natural History, New Delhi, will hold an eight day snake exhibition in the Museum's premises. Four two-legged and many more legless representatives of the Park will be in Delhi for this public-education programme which will begin on November 1st. There will be talks, slide shows and demonstrations.

Editor's Note

On 21st June, a 25 year old male snakebite patient was brought to the Osmania General Hospital, Hyderabad, at 11 a.m. This is one of the major hospitals in Andhra Pradesh. Seven hours later Tuljaram was dead. The hospital did not have antivenom; had been without it for a year. During this time six or seven people had died. (Indian Express, 23/6/81).

Once again we have a shameful verdict on the state of medical help in this country; this incident needs no further comment. There will of course be no follow-up report in the papers; we will never know why antivenom had not been supplied by Haffkine Institute: why no efforts had been made to get it from another hospital; and why, after several similar incidents, medical associations in India are not trying to do something about the erratic, undependable and inadequate supply of antivenom serum to hospitals and clinics. We read in the papers that doctors in Delhi have made a sophisticated breakthrough in treating neurotoxic envenomation, at the same time we read and hear about patients like poor Tuljaram who succumb to bureaucratic bungling.

Deaths due to non-availability of antivenom serum are no doubt higher than reported. The production of antivenom in India must be tackled soon; either production must be drastically increased and delivery services improved, or private enterprise invited to step in and fill the gap. Until then, the publicity about how to treat snakebite ("get the patient to the hospital as soon as possible") will seem hollow; for the patient might get to the hospital and find he may just as well have suffered and died at home.

SNAKEBITE

The "success" - often widely publicized- of various local snakebite cures is interesting because it confirmsthe high percentage of non-fatal venomous bites. Dr. Piyasena Seneviratna, of the Mawanella Snakebite Treatment Hospital in Sri Lanka, has been in correspondence with the Snake Park. It must be said that he seems to be a dedicated and energetic person who has saved lives; but whether the treatment has been reassurance and elimination of shock, or medical, is a matter of conjecture. His methods include chanting mantras, oil baths and surgical treatment.

In a 3rd June letter, Dr. Seneviratna gives the following breakdown of in-door treatments at his hospital(which is run by himself and his son, both famous for their cures in Sri Lanka)

Cobra	173
Viper	130
Krait	106
Mapila(?)	82
Others	75

There were a total of nine deaths at the hospital in 1980. The Daily Mirror published a story about how Dr. Seneviratna treated a 28 old patient; pronounced dead (obviously in a coma), he was placed in a

specially prepared oil bath and revived in two days. He had been bitten by a cobra while harvesting paddy. Dr. Seneviratna has written a book on his methods of snakebite treatment.

SNAKEBITE DATA FROM WEST BENGAL

At our Subsidiary Health Centre in Harendranagar, West Bengal, we have treated 36 snakebite patients in the six years between 1975 and 1980. The following chart refers to cobra and krait bites.

Year	Cases			Deaths		
	Male	Female	Total	Male	Female	Total
1975	6	2	8	-	1	1
1976	6	1	7	1	1	2
1977	7	2	9	-	-	-
1978	3	1	4	-	-	-
1979	2	3	5	1	-	1
1980	3	1	4	1	-	1

Since there is so much discussion about the most appropriate treatment of neurotoxic poisoning it might be helpful to reproduce here the case history of Miss Gouri Mondal, age 6, who was treated at our clinic on 11.12.79.

Patient was bitten on the dorsum of the right hand as she was collecting paddy from a rat hole. The snake (monocled cobra) was brought along with patient which was 7 kms away from where the bite occurred. A ligature had been applied on the right arm immediately after the bite. The bite happened around 3 p.m. and the patient was examined at 5.30 p.m.

On examination the symptoms were: burning pain in the hand, inability to stand without help, giddiness, blurred vision, difficulty in swallowing. There were two distinct fang punctures about 3/4" apart and blood was oozing from the wound. Swelling of hand and fingers, drooping of the eyelids (ptosis). Slurred speech, tongue protruded with difficulty. No respiratory distress.

Management of the bite began at 5.45 p.m. Incision given over fang marks, wound washed with potassium permangnate. Dressing of the wound with furacin powder. Injections of penicillin, decadron, avil and tentanus were given.

60 cc of concentrated polyvalent antivenom given (1/v) very slowly and without skin test to save valuable time. Ligature was released 45 minutes after administration of antivenom. The patient was under observation for 8 hours and recovered after 13 hours. She was discharged on 13.12.79. There was no serum sickness or other after-effects.

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SNAKEBITE TOLL IN BANGLADESH

The Statesman, Calcutta, of 15/1/81 states that snakebite has claimed at least 20 lives in Rangpur District, Northern Bangladesh, in one week. An editorial in a Bangladesh newspaper claimed that there should be a massive snake killing campaign. In a small country like Bangldesh a public education campaign, publicizing first aid and treatment, would perhaps be a more reasonable approach.

PROTECTION FOR RANIDS

Rana hexadactyla and Rana tigrina are on Schedule IV of the Wildlife Act since October '80. These are the main frog leg species and Schedule IV requires dealers to get licenses from the Wildlife Warden. When the Wardens get applications for 500,000 frogs their reaction is naturally: can frogs withstand such levels of exploitation? Is anyone monitoring this harvest? Do we know anything about frog's population dynamics, ecological role, etc. etc?

SKIN TRADE

"An estimated $60m worth of skin is still smuggled out of the country every year. Bombay is the smuggler's favourite haunt, but Nepal is fast coming up as a rival. It does not prohibit snakeskin exports, and smugglers have little difficulty in sending consignments across its 1,000 mile border with India... One rodent Specialist has suggested that (snake catchers) should be encouraged to catch rats instead of snakes... The Central Leather Research Institute of India has developed new techniques for tanning and finishing rat-skin. It claims that the skin is of good quality, suitable for purses and shoes. All that remains is to persuade fashion-conscious westerners to switch from snakesto rats when they step out in style". (The Economist, 11 April 1981).

At present there are fifteen million snakeskins in Madras city alone, and 200,000 lizard skins. This is the declared stock only. Undeclared illegal stock is anybody's guess.

TEN DAYS IN KALAKKADU

Kalakkadu Wildlife Sanctuary, comprising dry scrub, dry deciduous, mixed deciduous and evergreen vegetation, is contiguous with Mundanthorai Sanctuary and is situated in the Ashambu Hills, the southern most range of the western ghats. On previous trips I had covered Mudalirruppan, Sengelthari, Kuliraatii, Sathan Koil, Kuvapatti, S.S.R Estate, Annamalai Nalar Estate and Keel Manimuthar.

During my recent trip I walked from Kalakkadu to Sengeltheri (17 kms); then to Natterikkal (15 kms); and to Kakachi from there (10 kms). Kakachi is at 5,500 ft; evergreen forest interspersed with abandonned cardomon estates. A large king cobra was seen here some months ago. I returned to Kalakkadu then to Thirukarungudi Range, and Nambikkovil. Below is a list of the reptiles and amphibians seen:

Frogs

Rana limnocharis	common in lower areas.
Rana cyanophlyctis	common throughout.
Rana malabarica	seen from Mudalirruppan onwards - Increasingly common higher up.
Rana beddomii	Common at Sengeltheri.
Rhacophorus malabaricus	2 specimens near Sengeltheri; one near a stream, the other far from water.
Bufo melanostictus	uncommon higher up
Philautus variabilis	in streams near Sengeltheri, Kakachi etc. on vegetation or rocks.
Nyctibatrachus major	in small forest puddles around Sengeltheri and keel Manimuthar.
Microhyla rubra	often heard in lower areas.

Lizards

Calotes versicolor	common throughout
Calotes nemericcla	common in the cardomom estates at Sengeltheri - Not agile and easily caught. One female specimen with a small pinkish gular sac laid 6 eggs on 26 July.
Calotes calotes	probably common throughout; seen at Talaiyani and near Nambikkovil
Calotes rouxi	one specimen
Sitana ponticeriana	common in lower areas
Psammophilus blanfordanus	very common at Sengeltheri and Kuliraatii; males seen between May and June were in breeding colors.
Varanus bengalensis	common throughout
Mabuya carinata	common throughout
Mabuya macularia	common at higher altitudes
Lepidopisma bilineatum ?	possibly L. paterimaculatum
Chameleo zeylanicus	common throughout
Cnemaspis mysoriensis	small 5 cm specimen at Sengeltheri
Cabrita leschenaulti	common upto Mudairruppam and lower areas of Thirukarugudi Range.

Hemidactylus frenatus	lower areas

Snakes

Ptyas mucosus	common throughout
Uropeltis elliotii	one specimen at Sengeltheri
Macropisthodon plumbicolor	one specimen at Sengeltheri
Atretium schistosum	newly hatched young found in stagnant puddles at Sengeltheri in association with newly hatched young of Xenochropis piscator
Trimeresurus malabaricus	five specimens in Sengeltheri and Keel Manimuthar, measuring 45–50 cms. Not seen below Sengeltheri or above it.
Lycodon aulicus	Kakachi
Elaphe helena	one specimen at Sengeltheri; much darker in color then normal forms and with a pinkish belly
Eryx conicus	Talaiyanar

Shekar Dattari
c/o Madras Snake Park
Madras - 22

TURTLES IN DROUGHT

The vulnerability of aquatic reptiles to drought was dramatically reported on by Stan and Belinda Breeden. While filming at Bharatpur they noted that several thousand softshell turtles, Lissemys punctata died between November 1979 and June 1980, a period of extreme drought when only one small pond remained in that sanctuary.

Many turtles died from overheating after getting stuck in the mud. As others moved from pond to forest (where they could dig in among leaves) white scavenger vultures would flip them and persistently tear at the flaps covering the turtles' hind legs till the turtle was disembowelled.

In the last remaining pond possibly 30–40 large Ganges softshells (Trionyx gangeticus) remained. One large Hardella thurgii also survived the drought.

BANGLADESH - MONITORS AND TURTLES

Visiting Bangladesh at the height of monsoon may appear to be the height of folly but from a herpetological standpoint it was highly interesting. Every year during July and August one third of Bangladesh will predictably be underwater. During this period transport for the people of at least half the country is by boat. The only land out of water in these areas of the country are major roads and small islands on which individual houses and small villages are located. As an island situation one can visualize all the wildlife of the area congregating on these remaining patches of high ground. Rats, civets, mongoose, ground dwelling birds, beetles that shun water and of course, lizards and snakes.

FAO recently offered me the opportunity of investigating the role of monitor lizards in controlling crop pests. As in India, Bangladesh loses a significant proporation of its food grain (and other crops) to destructive insects, rats and mice. During the November harvest of the aman rice crop in particular, destruction is very high.

In a three week runaround tour, arranged with the help of the Forest Department I made it through the districts of Chittagong, Barisal, Mymensingh and of course Dacca. I was accompanied by Tsutomu Hikida of Kyoto University, M.A. Reza Khan of Dacca University and Wahab Akonda of the Bangladesh Wildlife Circle of the Forest Deptartment, all four of us keen on reptiles.

During 1978/79 nearly 2,000,000 monitor lizard skins were exported from Bangladesh, almost all to Japan for handbags, wallets, shoes, and watch-straps. About 70% were yellow monitors (Varanus flavescens) 25% Bengal monitors (V. bengalensis) and 5% water monitors (V.salvator). Accordingly, to look at a lot of lizards in a short time we contacted the lizard catchers at Salna, just outside Dacca. The ten catchers we met are farmers for part of the year but when the monsoon waters st rt rising lizard hunting is their lucrative pursuit. In three days they had 36 lizards for us, sixteen yellow monitors and twenty common or Bengal monitors. All were alive and besides counting scales and measuring them we wanted to look at their stomach contents. A trip to New Market in Dacca got us the necessary equipment: a foot length of hard rubber tube, a tea strainer and a "lota", a water container with a spout. Inserting the tube as gently as possible (considering the tightly clamped jaws) to the top of the stomach we then poured in enough water to dilute the contents and then tipped the lizard over and strained the decanted liquid. After a few repetitions we found that we were also getting the intestinal contents, from the other end. We eventually looked at 46 monitors, only one a water monitor. The water monitor is one of the world's largest lizards but its size and skin value has made it a number one target for the skin industry and in Bangladesh it is rarely seen outside the Sunderbans Reserve Forest in Khulna Dsitrict. The two smaller monitors are found throughout the country, though the yellow monitor seems to prefer the low ground and the rice fields while the Bengal monitor is more commonly found on the high ground often around human dwellings.

In the stomachs and intestines of the monitors we found remains of a wide variety of insects, crabs, snails, frogs, bird feathers and even a goat horn! We observed that for these as with other predators the seasonal availability of prey is a vital factor. In a study in Madras, J Vijaya and myself found rodent remains in 60% of monitor scats examined during the dry period. We proposed that an examination of monitor diet during the dry winter and spring months is essential. We learned very little more about the life history of the monitors of Bangladesh. Where they lay their eggs for the 8 or 9 month incubation is a big question and even the timing of laying is guess work. Based on data from other parts of India, the Bengal monitor may lay its eggs in September or October and the water monitor in June/July. The presence of yolked oviducal eggs in two yellow monitors in this study leads us to believe that August is their month for laying.

Turtles

As members of the IUCN/SSC Freshwater Chelonian Group, Reza Khan and I couldn't resist dropping in at fish markets to check out the turtles. This was not turtle "season", the winter months are when we could see a maximum number of all varieties and sizes we were told. We did see three species in the markets, altogether about a dozen spotted flap-shell turtles (Lissemys punctata punctata), several peacock softshell turtles (Trionyx hurum) and a single Ganges softshell turtle (Trionyx gangeticus) being carved up at Barisal market. Turtles aren't vocal and perhaps this is why there are no qualms about butchering them alive. We stood with a small appreciative crowd at the turtle stall and watched the big male have its shell sliced away and pieces removed till it was several moving piles of meat, eyes blinking and neck muscles retracting into a shell no longer there.

Turtles are not eaten by orthodox Muslims, the religion of most Bangladeshis. There are enough Hindus and Christians to sustain a heavy demand for turtle meat and exports (mainly to Thailand and Singapore) were as high as US$500,000 worth in 1978/79. One turtle which was reportedly common in Bangladesh at one time was Batagur baska. While there is a large adult in the Mirpur Zoo in Dacca, it hasn't been seen in the wild here for many years. While Bangladesh is indeed a unique country with thousands of kilometers of waterways, the status of its turtles is unknown and exploitation could be threatening some of the other species which are found there. While driving along a stretch of the Arakan Road near Cox's Bazar we saw a turtle crossing ahead of us. We screeched to a halt and pounced on it, a beautiful specimen of the Malayan box turtle, Cuora amboinensis, a find which may be a considerable range extension for the species. At the beach at Cox's Bazar we found some sea turtle bones which have yet to be identified but are likely to be Pacific Ridley (Lepidochelys olivacea) a winter nester on the eastern coast of the Indian subcontient.

We saw suprisingly few snakes, probably explainable by the fact that every thing was covered in dense grass and bushes. Besides the amphibian calls we knew, like the toad (Bufo melanostictus) bull frog (Rana tigrina), skittering frog (R.cyanophlictus) paddy frog (R.limnocharis), narrow-mouthed frog (Microhyla ornata), painted frog (Kaloula pulchra) and common tree frog (Rhacophorus maculatus) we learned some new ones, a loud chatter from Rana temporalis and the musical tittering of Tytler's frog (Rana tytleri) plus other tantalizing, yet to be tracked down calls from forest ponds and epiphyte draped trees.

The house gecko (Hemidactylus frenatus)abounded everywhere we went. The large tokay gecko was often seen at night on the bigger trees. The common skink is, predictably, Mabuya carinata. We saw several skins of the reticulated python among the hundreds of skins, bags etc. at tourist shops. The skins are reportedly from Chittagong Hill tracts which probably puts its range in India (Mizoram, Tripura) as well.

My thanks to Dr. Reza Khan of Dacca University and officers of the Wildlife Circle of the Bangladesh Forest Department, and to Dr. Konrad Klemmer of Senckenberg Museum who allowed me to review literature in the Senckenberg library on the subject.

R.W.
Madras Snake Park Trust
Madras - 22

MUGGER RELEASES

In April 1981 the Andhra Pradesh Crocodile Project extended its "rear and release" strategy to one more Wildlife Sanctuary; 128 C.palustris were released into the Nagarjunasagar Srisailam Sanctuary which encompasses some 120 kms of the Krishna River. These mugger were obtained from rearing stations at Sathanur and Hoggenakal in Tamil Nadu State. The project has restocked the mugger habitats within Pakhal and Kinnerasani Sanctuaries (see Hamadryad Vol.6 No.2). The Nagarjunasagar-Srisailam Sanctuary includes some exceptional habitat. The stretch of 65 kms from the confluence of the Dindi and Krishna Rivers to 15 km downstream of Srisailam dam includes deep pools, rapids and mud and sand banks for nesting. Surrounded by forest cover, the riverine habitat is reasonably free of disturbance. Fishing has been banned in this area; and further releases are planned.

In Similipal Tiger Reserve, Orissa, 60 mugger were released during April 1981. These also originated in Tamil Nadu (rearing station at Sathanur and Madras Crocodile Bank) and were of the 1976, 1977 and 1978 yearclass. The Budha Balang and Khairi- Bandhan rivers flowing through the Sanctuary are well protected and there are reports of a small mugger population. Mr. Rangan Benarjee, under the supervision of the field director S.R. Choudhury, will monitor the released crocodiles. A rearing station with hatchery, hatchling and yearling pools on the banks of the Khairi- Bandhan at Ramatirtha near Joshipur holds mugger taken from Tamil Nadu; there are plans for a breeding complex. The Orissa Crocodile Project has also released gharial (in Satkosia Gorge Sanctuary) and saltwater crocodiles (Bhitar Kanika).

Meanwhile the mugger released at Ethipothala falls in Andhra Pradesh in 1977 (see Hamadryad Vol.2 No.2) have started breeding this year; this is the first instance of a released crocodile breeding in India. The recently hatched nest with 9 eggs (four had hatched) was located on 13 June below the falls. Later the young were seen with the female. She was 1.9 m at time of breeding; and the largest male is estimated to be 2.1 m.

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BREEDING NOTES- (J. VIJAYA)

Lissemys Hatching at MSP

On 1st November 1980, a Lissemys p. granosa nest was seen in Taramani, Madras in stiff brush and grass along a farm fence. The site was a mound 50 cms. high and received filtered sunlight throughout the day. Substrate was moist, loose, fine sand, depth to first exposed eggs was 8 cm; total depth was 12 cm; diameter of chamber, 8 cm. The total of 8 eggs were collected. The average weight was 11.5 gm average diameter 26.55 m. They were still moist and Chockalingam estimated them to be 3 days old. They were incubated at the Snake Park in a plastic box, 25 x 14 x 12 cm.

On May 8, 1981, 6 months after collection, one egg was opened. The live embryo was nearly fully formed with a 2 cm carapace length; weight of embryo was 4 mg. Weight of egg was 9 gm. The embryo was alive and pulsating.

On 6th July two eggs were opened and found to be infertile. On 20 July 2 eggs were opened, on 22 July another and on 25 July the last two. The five Lissemys are healthy and normal. Incubation period was 8½ months. The hatchlings are feeding on Rhacophorus maculatus tadpoles and earthworms.

Chameleon hatching at MSP

On 3 December 1980 a gravid Chameleo zeylanicus with a broken pelvis was brought to the Snake Park. It measured 18.2 cm snout-vent; 20.1 cm tail, 122 gm in weight. It was observed digging and kept in a plastic basin with earth; but the broken pelvis prevented it from laying and it died on 9 December. 23 eggs were removed, 11 from the right oviduct and 12 from the left oviduct. Average egg measurements were: length 1.9 cm., breadth 1.25 cm. and weight 1.5 gms. The eggs were placed in a plastic box with 5 cms. earth. 19 eggs hatched between 15th and 20th July. The juveniles measured 4.0 cms. snout - vent, 4.15 cms tail and weighed 1 gm. on the average. They were fed on small butterflies and all but eight were released on July 26th.

Common Monitor hatching at MSP

In September 1980, Chockalingam took Robert Larson and myself to a 'Karrayan Puthu' - one of the four types of termite mounds found in the Guindy forest area. It was about a foot high with two openings, one at ground level and the other a few inches above ground. From evidence at the mound - which needless to say escaped us- Chockalingam was convinced that a V. bengalensis had laid eggs in the mound. On 6th July 1981 we opened the mound and removed the twelve leathery eggs. Average size was 2.9 x 1.5 cms and average weight 19.6 gms. Nest depth was 23 cms., breadth 44 cms. Temperature inside the nest was 30.2°C.

The eggs were placed in a plastic box partially exposed with 5 cms. earth and 8 cms airspace. On 20th July one egg had a slit in the shell and on 22nd July I opened the first two eggs. On 24th July the other 9 hatched. Hatchlings were healthy except one which had a great deal of unabsorbed yolk attached ot its belly, but it was isolated, and recovered.

The other eleven hatchlings measured 9.4 cm. snout-vent, weight 11.4 gms. on the average. The sick hatchling measured 8.7 cms snout-vent, 11.5 cms tail and 10 gms in weight. The hatchlings were released on 28 July '81.

ADDLED ADDERS

A female puff adder laid 25 egg masses on 15 August. On the 16th she gave birth to two babies, one without eyes. Their average length is 2,13 cms.

GAVIALIS

D Basu of the U.P. crocodile project writes that over 240 gharial were released in the Chambal this year bringing the total number released to 425. Monitoring of these animals is not possible because of the dacoit problem which has intensified since 1976 when the project began.

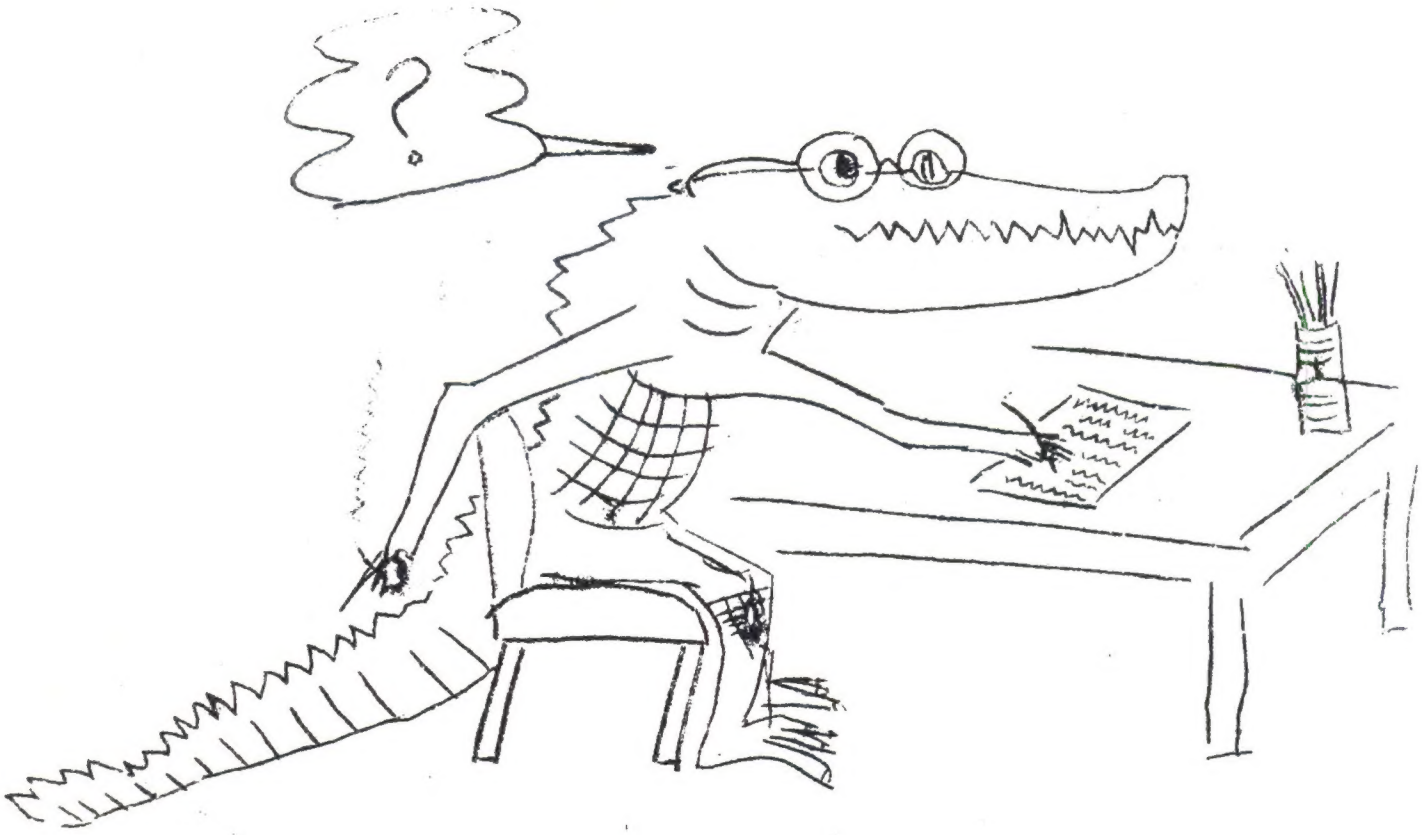
Bangladesh

The presence of gharial reportedly extinct in Bangladesh, has been confirmed by Dr. Reza Khan of the Zoology Department of Dacca University on a visit to the Padma and Jamuna Rivers. Dr. Khan confirmed a report that villagers near Rajshahi town collected 36-39 eggs from a nest on April 8 and 19.

VISIT TO PIROTAN ISLAND

Recently I visited Pirotan Island which lies in the Gulf of Kutch, about 16 km from the Bedi Bhunder post of Jamnagar. There are about 30 scattered islands from Jamnagar to Okha which harbour one of the most beautiful coral stretches with thick mangrove bushes along the shore. All the islands provide excellent feeding grounds for a number of species of water birds, as the corals are subjected to tides twice a day.

The largest of the islands is Pirotan which is about 4 sq. km. The soil is sandy throughout, except in the mangrove bushes which have a lot of mudskippers. Vegetation is sparse, the major species being Avicennia, Ceriops, Aloe and Prosopis juliflora. The only snake found there is the saw scaled viper (Echis carinatus) which is specially adapted to dry and sandy conditions. The saw-scaled viper found here is the longest and stoutest I have ever seen. The potency of the venon is believed to be very high. The colour is a light sandy brown with very dull markings on the body. It hides in the soil to avoid the heat in the day time and comes out at night in search of prey. The only prey which it can obtain on the island is the Sita's lizard (Sitana ponticeriana) which is also highly adapted to sandy soil. The limbs are long and therefore effective for running on loose soil and the colour very dull.



AT WORK ON THESIS: "Management of Human Populations"

Studies can be done regarding this vipers successful survival in the extremely unfavourable ecological conditions of the island. The following studies can be undertaken in Pirotan:

i) The different colour pattern in comparison with the saw-scaled vipers found in the mainland.

ii) Food and feeding habits according to seasonal changes.

iii) Studies on the body fluids and their constitution in the extremely saline conditions.

The Government of Gujarat is to be commended for declaring this stretch of coral islands with mangrove thickets a Marine National Park.

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MADRAS CROCODILE BANK MUGGER NESTING DATA FOR 1981

Nest No.	Female Name	Date of laying	Date of hatching	No. of Eggs	No. Hatched	Infertile & Rotten Eggs
1.	Chidam	12.2.81	30.4.81	29	27	2
2.	Amara	17.2.81	Nil	23	Nil	23
3.	Karrupukann	18.2.81	5.5.81	21	16	5
4.	Chitra	19.2.81	Nil	3	Nil	3
5.	Estie (Stumpy)	27.2.81	11.5.81	36	31	5
6.	Misty	2.3.81	10.5.81	36	30	6
7.	Vijaya	10.3.81	27.5.81	30	28	2
8.	Nova	10.3.81	24.5.81	22	18	4
9.	Chidam	28.3.81	31.5.81	32	28	4
10.	Karrupukann	31.3.81	12.6.81	17	7	10
11.	Estie (Stumpy)	11.4.81	9.6.81	32	27	7
12.	Chitra	11.4.81	22.6.81	42	19	23
13.	Misty	13.4.81	19.6.81	31	20.	11
14.	Vijaya	20.4.81	2.7.81	33	17	-
15.	Nova	23.4.81	3.7.81	29	21	-
16.	Ahemadabadi pit No.11 (first year of laying)	?	13.5.81	17	8	9
	TOTAL			435	297	

Hatching percentage was 68.3. This was the fifth year we had females laying two clutches each breeding season.

CONSERVATION OF HERPS

While conservation of reptiles and amphibians has lagged way behind the attention given to our furry and feathered brethern, today we see quite a lot of positive interest and action. The Convention on International Trade in Endangered Species (CITES) is a milestone toward controlling trade in the commercially traded species and the International Union for Conservation of Nature (IUCN) is responsible for monitoring reptiles and amphibians under pressure for other reasons, usually habitat loss and local exploitation. To keep information on status of reptiles and amphibians up to date, studies by institutions and individuals, supported by agencies such as the World Wildlife Fund are vitally necessary. The IUCN summarizes the status of reptiles and amphibians in its Red Data Book (RDB). The compiler of the Amphibia and Reptilia Red Data Book, is Dr. Brian Groombridge, 219 (C) Huntingdon Road, Cambridge CB3 ODL- UK.

The IUCN also has Specialist Groups under the Species Survival Commission to give special attention to threatened species. One of their most important functions is to identify species which need attention. "Attention" usually entails a survey of the animals status and recommendations for its conservation which generally means habitat protection and a study of its biology. Information is badly needed on the status of most of the exploited herps; in India notably the two exported frogs (Rana tigaina and Rana hexadactyla), the snakes and the monitors killed for skins.

Reptile Specialist Groups are given below:

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SUBSCRIPTION

Local:	Rs.	10	annually
Foreign:	$	3	annually (surface)
	$	4	annually (air-mail)

Cheques should be made to the Madras Snake Park Trust

Newsletter of the Madras Snake Park Trust, Guindy Deer Park, Madras-600 022. Edited by Zahida Whitaker.